## REMARKS/ARGUMENTS

Reconsideration of this application is requested. Claims 1-4 remain in the application and stand rejected as allegedly being obvious over EP 0288 298 in view of Jang et al US 6,451,899, Itoh et al US 5,760,120, as well as three additional documents; see page 2 of the Official Action. A similar rejection, on page 3 of the Official Action, cites additional documentation.

The crux of both art-based rejections is the disclosure of EP 0288 298 which, as the examiner correctly points out, is silent as to the flame retardancy for home electrical appliances. All of the secondary references are relied upon by the examiner for describing the use of a phosphorus-based flame retardant in molding compositions for electrical and electronic parts.

The examiner has already considered the comparative data but, at present, finds it insufficient. These data, and the possibility of further data, were discussed with the examiner and the undersigned during an interview on July 15, 2003.

In the Office Action, page 2, the last paragraph, the Examiner states "Thus, comparative examples using 0 and 0.3 for n has a shortcoming, and data for n greater than the recited upper limit 1.2 are needed.". In response to the examiner's comment, one of the inventors, Mr. Sumimoto, conducted experiments and submits the attached [1] evidentiary declaration.

Following the examiner's suggestions, applicants have conducted comparative experiments with compositions falling within and outside of applicants' claims in terms of the definition for n.

As shown, the declaration presents data demonstrating that the resin composition within the scope of the present claims (n=0.5-1.2) is superior to a resin composition out of the scope of applicants' claims in terms of fluidity, Izod impact strength and falling

[1] An executed declaration will be faxed to the examiner as soon as it is received from the declarant.

weight impact strength. Compare Experiment 1 (n=1.1) within applicants' claims and Experiment 2 (n=1.4) outside of applicants' claims

Table

| Experiment | 1 | 2 |
|---|---|---|
| Composition (part) | | |
| Component (A) | | |
| (A1-1) | 40 | 40 |
| (A2-1) | 60 | 60 |
| Properties of component (A) | | |
| Rubber content (%) | 12 | 12 |
| Graft ratio (%) | 115 | 115 |
| Component (B) | | |
| (B-1)(n=**1.1**) | 10 | - |
| (B-2)(n=**1.4**) | - | 10 |
| Component (C) | 2 | 2 |
| Evaluation results | | |
| Fluidity (g/10 min.) | **49** | 20 |
| Izod impact strength (J/m) | **14** | 8 |
| Heat deformation temperature (HDT)(°C) | 83 | 85 |
| Burning property | V-2 | V-2 |
| Falling weight impact strength | **390** | 120 |

Experiment 1 corresponds to Example 1 of the present invention. The n value of condensed phosphoric acid ester is 1.1 and within the scope of the present invention. By contrast, in Experiment 2, the n value of condensed phosphoric acid ester is 1.4 and out of the scope of the present invention.

As seen from the results reported in Table 3, the resin composition of Experiment 1 (n=1.1) is superior to the resin composition of Experiment 2 (n=1.4) in fluidity, Izod impact strength and falling weight impact strength – all three important values.

From an interpretation of these data, when n value is not more than 1.2, the flame retardant thermoplastic resin composition according to the present invention is

unexpectedly excellent in fluidity, Izod impact strength and falling weight impact strength.

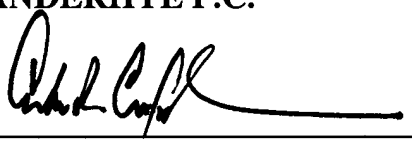
These data, when taken together with other data of record in this application, clearly demonstrate that applicants' claims are in no way suggested by the cited and applied prior art. Applicants have provided comparative data responsive to the examiner's suggestions, and based upon the significance of these data submit that their claims define patentable subject matter.

Reconsideration, entry of this Amendment and the attached declaration and allowance are solicited.

On or about November 22, 2003, if a Notice of Allowance is not in hand, applicants intend to file a Notice of Appeal to maintain pendency of this application and to allow the examiner ample time to consider and digest this evidence and information.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: 

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

NORIFUMI SUMIMOTO ET AL

SERIAL NO. 09/729,927 GROUP ART UNIT: 1714

EXAMINER: TAE H. YOON

FOR: FLAME RETARDANT THERMOPLASTIC RESIN COMPOSITION

DECLARATION UNDER 37 C.F.R. 1.132

HONORABLE COMMISSIONER OF PATENTS & TRADEMARKS

WASHINGTON, D.C. 20231

SIR:

Now comes Norifumi SUMIMOTO, a citizen of Japan, and a resident of c/o Techno Polymer Co., Ltd., 18-1, Kyobashi 1-chome, Chuo-ku, Tokyo, Japan, who declares and says that:

1. I graduated from Shizuoka University, Faculty of Engineering (master degree), in March, 1989.

2. I was employee of JSR Corporation in 1989-1996, I have been an employee of Techno Polymer Co., Ltd since 1996 and have been engaged in the study of an ABS resin composition.

3. I am an inventor of U.S. Patent Application, Serial No. 09/729,927.

4. I have read the Office Action dated May 22, 2003, have understood the Examiner's rejection of the invention claimed

in the above application. Then, under my control, the following experiments were conducted.

Experiments 1 and 2

(1) Preparation of rubber polymer:

As rubber polymer (a-1), there was used polybutadiene latexes shown in Table 1 below.

Table 1

| Rubber polymer | (a-1) |
|---|---|
| Polybutadiene latex | |
| Particle size distribution (%) | |
| not more than 150nm | 12 |
| from more than 150 nm to less than 350 nm | 80 |
| not less than 350 nm | 8 |
| Gel fraction (%) | 78 |

(2) Preparation of component (A):

The rubber polymer (a-1) was emulsion-polymerized with styrene and acrylonitrile as the monomer component (b) at mixing ratios shown in Table 2 thereby obtaining graft copolymer (A1-1). Separately, only styrene and acrylonitrile as the monomer component (b) were solution-polymerized with each other at mixing ratios shown in Table 2, thereby obtaining copolymer (A2-1). The intrinsic viscosities [η] of the thus obtained graft copolymers (A1) and copolymers (A2) are shown in Table 2.

Table 2

| | Rubber polymer | | Monomer component (part) | | Graft ratio (%) | Intrinsic viscosity [η] (dl/g) |
|---|---|---|---|---|---|---|
| | Kind | Part | Styrene | Acrylo-nitrile | | |
| A1-1 | (a-1) | 30 | 49 | 21 | 115 | - |
| A2-1 | - | - | 70 | 30 | - | 0.56 |

(3) Preparation of phosphorus-based flame retardant:

The following condensed phosphoric acid esters (B-1) to (B-2) were used as the component (B).

(B-1): Condensed phosphoric acid ester represented by the above general formula (I) wherein $R^1$ to $R^4$ are phenyl; X is a residue of bisphenol A; and n is 1.1.

(B-2): Condensed phosphoric acid ester represented by the above general formula (I) wherein $R^1$ to $R^4$ are phenyl; X is a residue of bisphenol A; and n is 1.4.

(4) Preparation of component (C):

As the component (C), there was used ethylene bis-stearylamide produced by Kao Co., Ltd.

(5) Preparation of resin composition:

The respective components were mixed together for 3 minutes at mixing ratios shown in Table 3 using a Henschel mixer. Then, the resultant mixture was melt-extruded from an NVC-type 50-mm vented extruder manufactured by Nakatani Kikai Co., Ltd., by setting the cylinder temperature to 180 to 220°C,

thereby obtaining pellets. The thus obtained pellets were sufficiently dried, and then injection-molded using an injection molding machine J100E-C5 manufactured by Nippon Seikosho Co., Ltd., by setting the cylinder temperature and mold temperature to 200°C and 50°C, respectively, thereby obtaining test specimens for various evaluation tests. The test specimens were tested by the following evaluation methods.

Particle size and particle size distribution of rubber polymer:

The sizes of particles dispersed in latex were measured by laser Doppler/frequency analysis. The measurement was conducted using a granulometer ("MICRO-TRACK UPA150, MODEL NO. 9340" manufactured by Nikkiso Co., Ltd.). Meanwhile, it was confirmed that the size of the rubber polymer particles dispersed in the rubber-reinforced resin were substantially identical to those dispersed in latex.

Gel fraction (content of toluene-insoluble components):

The gel fraction was measured by the above method described in the present specification.

Graft ratio (percentage):

The graft ratio was measured by the above method described in the present specification.

Intrinsic viscosity [η]:

The rubber-reinforced resin was added into acetone. The resultant mixture was shaken at room temperature for 2 hours using a shaker, and then centrifuged for 60 minutes using a centrifugal separator (rotating speed: 23,000 rpm), thereby

separating the mixture into acetone-insoluble components and acetone-soluble components. The obtained acetone-soluble components were sufficiently dried by a vacuum dryer. The dried acetone-soluble components were dissolved in methyl ethyl ketone to prepare five solutions having different concentrations. The reduced viscosities of the five solutions was measured at 30°C by Ubbellode viscometer. The intrinsic viscosities [η] (unit: dl/g) was calculated from the thus measured viscosities.

Fluidity (melt flow rate):

The melt flow rate (unit: g/10 minutes) was measured at 220°C under a load of 98N according to JIS K7210.

Impact resistance (Izod impact strength):

A test specimen No. 2 according to JIS K7110 was molded using an injection molding machine J100E-C5 manufactured by Nippon Seikosho Co., Ltd., by setting cylinder temperature and mold temperature thereof to 220°C and 50°C, respectively. The Izod impact strength (unit: J/m) of the test specimen was measured according to ASTM D256.

Heat deformation temperature (HDT):

A test specimen having a size of 6.4 mm in width x 128 mm in length x 12.8 mm in thickness, was measured under a bending stress of 18.5 kgf/cm$^2$ according to JIS K7207.

Flammability evaluation (flame retardancy):

A test specimen of 5" in length x 1/2" in width x 1/12" in thickness was subjected to vertical flame test by the method prescribed in UL94. In the evaluation results, "V-2"

represents V-2 acceptance in the vertical flame test, and "B" represents "burning", i.e., V-2 non-acceptance.

Falling weight impact strength:

The breaking energy of a test specimen having a size of 50 mm x 80 mm x 2.4 mm was measured using a high-speed impact tester "SERVO-PULSER EHF-2H-20L" manufactured by Shimadzu Seisakusho Co., Ltd. The measuring conditions were as follows: Specimen pedestal diameter: 30mmϕ; Striking bar tip: 12.7mmR; Striking speed: 3.1 m/s. The unit of the falling weight impact strength is "kgf·cm".

The results are shown in Table 3.

Table 3

| Experiment | 1 | 2 |
|---|---|---|
| Composition (part) | | |
| Component (A) | | |
| (A1-1) | 40 | 40 |
| (A2-1) | 60 | 60 |
| Properties of component (A) | | |
| Rubber content (%) | 12 | 12 |
| Graft ratio (%) | 115 | 115 |
| Component (B) | | |
| (B-1)(n=1.1) | 10 | - |
| (B-2)(n=1.4) | - | 10 |
| Component (C) | 2 | 2 |
| Evaluation results | | |
| Fluidity (g/10 min.) | 49 | 20 |
| Izod impact strength (J/m) | 14 | 8 |
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| Burning property | V-2 | V-2 |
| Falling weight impact strength | 390 | 120 |

Remarks

Experiment 1 corresponds to Example 1 of the present invention. The n value of condensed phosphoric acid ester is 1.1 and within the scope of the present invention.

On the other hand, in Experiment 2, the n value of condensed phosphoric acid ester is 1.4 and out of the scope of the present invention.

As seen from Table 3, the resin composition of Experiment 1 (n=1.1) is superior to the resin composition of Experiment 2 (n=1.4) in the fluidity, Izod impact strength and falling weight impact strength.

Therefore, when n value is not more than 1.2, the flame retardant thermoplastic resin composition according to the present invention is excellent in the fluidity, Izod impact strength and falling weight impact strength remarkably.

5. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

6. Further, deponent saith not.

Date:_____

_____

Norifumi SUMIMOTO